Twirling T-Rex

Kit contains:

- 1 foam core base
- 1 T-Rex in a tutu
- mini-wheel pasta
- plain toothpick halves
- fancy toothpicks
- 2 cardboard strips

You will need: scissors, glue, and a hammer (optional).

ALLERGY ALERT: This kit contains pasta.

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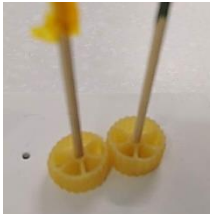
INSTRUCTIONS

In this project, you will construct a system of gears out of mini-wheel pasta and toothpicks. We fully expect toothpicks to break or pasta to be not-quite-round enough. Engineer without worry! Your STEMonade kit has extra parts.

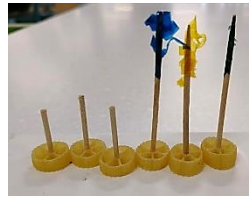
Step 1. Press or gently hammer a fancy toothpick through the center of a pasta wheel into the foam core base. (Go through both layers of foam core for added stability.)

Step 2. Place a second wheel next to the first so that the ridges interlock like the teeth of gears. Hammer into place with another fancy toothpick.

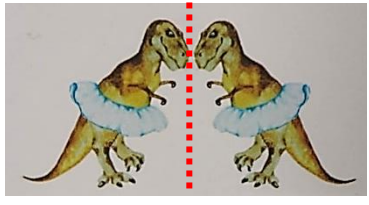


Step 3. Test! If you turn one pasta gear, does it make the second one turn? If not, remove the toothpick and reposition. If yes, add more pasta wheel gears, testing as you go.

Step 4. End your series of gears with at least 3 pasta wheels secured with plain toothpick halves.



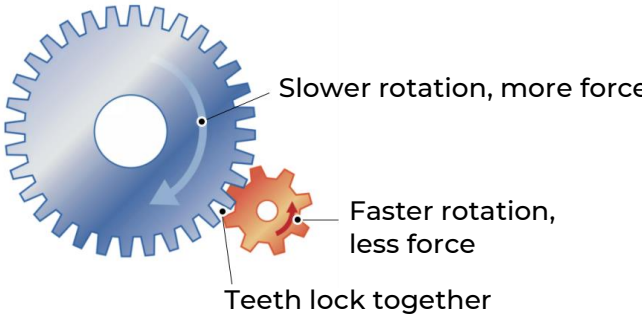
Step 5. It's T-Rex time! Wedge the cardboard strips into opposite sections of the last pasta wheel. Fold your T-Rex in half and trim. Glue your T-Rex halves together with the tops of the cardboard strips sandwiched between them.



Step 6. Replace your T-Rex wheel in your system of gears. When you turn one gear, the rest will turn and the T-Rex will twirl.

HOW DO GEARS WORK?

Gears are wheels with teeth that slot together. When one gear is turned, the other one turns as well. If the gears are different sizes, they can be used to increase the power of a turning force. The smaller when turns more quickly but with less force, while the bigger one turns more slowly with more force.



Observe your gears. Which ones turn in the same direction? Which ones turn in the opposite direction? What's happening?

Source: https://www.dkfindout.com/uk/science/simple-machines/gears/